(No Model.) 2 Sheets—Sheet 1.

J. C. CONGER & G. W. HENDERSON.

CONVEYER.

No. 351,965. Patented Nov. 2, 1886.

Fig. 1.

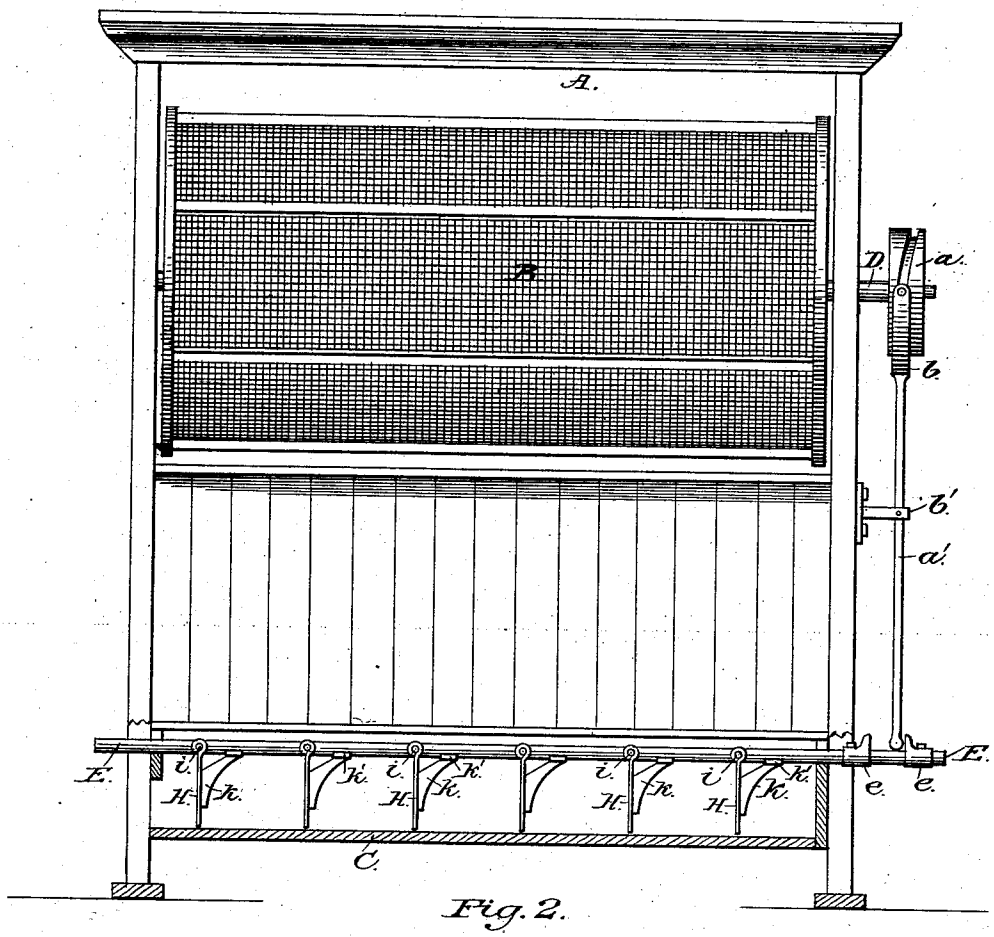
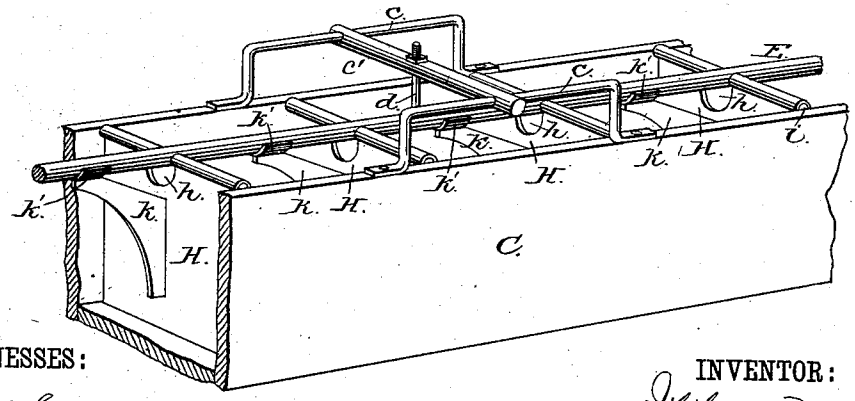


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

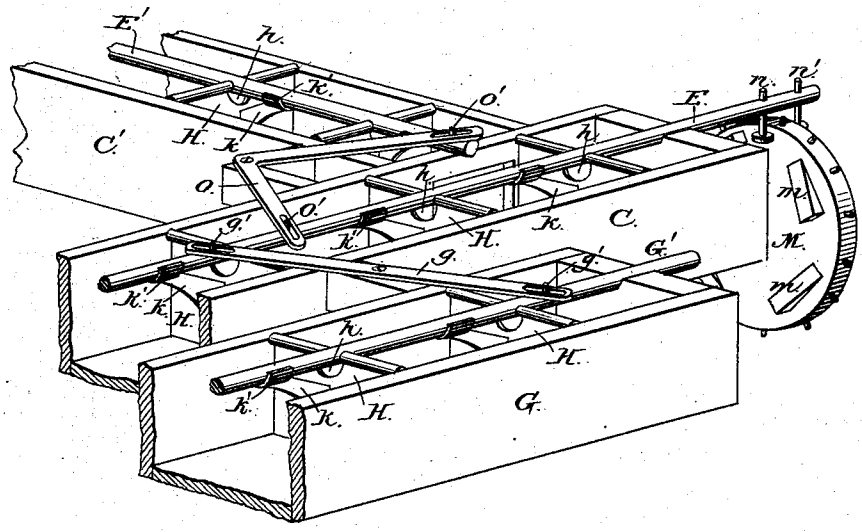
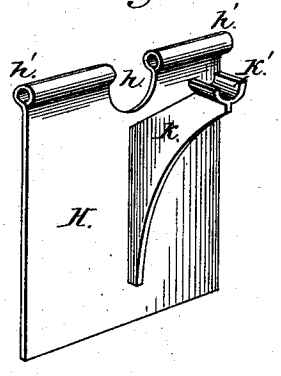


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOB C. CONGER AND GEORGE W. HENDERSON, OF COLUMBIA, MISSOURI.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 351,965, dated November 2, 1886.

Application filed July 9, 1886. Serial No. 207,565. (No model.)

To all whom it may concern:

Be it known that we, JOB C. CONGER and GEORGE W. HENDERSON, of Columbia, in the county of Boone and State of Missouri, have invented a new and Improved Conveyer, of which the following is a full, clear, and exact description.

Our invention relates to conveyers, and has for its object to convey all kinds of grain, flour, meal, sand, or any other substance for which ordinary conveyers are used in such a manner that the stock will not be ground or crushed in handling; also, to construct a conveyer with a reversible flight provided with a stop, either attached to the flight or the shaft, whereby the flight is held in a positive vertical position when conveying the stock forward, and allowed to slant or incline when drawn back to receive it again.

The object is also to provide a conveyer whereby motion can be readily communicated from one reciprocating shaft to the shaft of another conveyer at an angle therewith or parallel thereto, or to a conveyer in each position, as desired.

Our invention consists to that end in the improvements which will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a conveyer, partly in section, applied to a bolting-chest; Fig. 2, a perspective view of a conveyer with the shaft supported by raised side bars; Fig. 3, a perspective view of conveyers arranged at an angle and parallel, wherein power is communicated from the central conveyer-shaft to the others. Fig. 4 is a perspective view of one of the flights.

A represents a bolting chest, and B a bolt, below which is the hopper for conveying the product to the conveyer-box C. To the shaft D of the bolt B, which projects through the end of the frame, is keyed a cam, *a*, of suitable diameter to effect one or more strokes of a lever, *a'*, to one revolution of the shaft. The lever *a'* is formed with a yoke, *b*, at its upper end, which is provided with pins adapted to engage said cam *a*, and is pivoted to an offset, *b'*, which forms a fulcrum therefor, the said offset *b'* being capable of adjustment to regulate the stroke of the lever *a'*.

Upon one end of the conveyer-shaft E, which is ordinarily held in bearings formed centrally in the ends of the conveyer-box C, are secured two lugs or pins, *e*, between and against whose faces the lower end of the lever *a'* has play, communicating by the action of the cam *a* and the engaging yoke *b* to the said conveyer-shaft a reciprocating motion.

Instead of holding the conveyer-shaft E in the ends of the conveyer-box, we find it convenient and preferable at times to fit raised bars *c* on the top edge of the box upon each side, centrally or at one end, as desired, and suspend the said shaft E by means of a bolt, *d*, or other equivalent device, to a rod, *c'*, adapted to slide upon said raised bars *c*, as shown in Fig. 2. One pair, or a series of pairs, of the raised bars *c* may be employed to support the said conveyer-shaft, the number being regulated by the length of the shaft.

A series of flights, H, are suspended at equidistance apart from the conveyer-shaft E the length of the conveyer-box C. These flights H are usually constructed of metal, with a central recess, *h*, formed in the top thereof to receive the shaft E and permit the flights to swing out at an angle thereto in operation. The top edges of the flights upon each side of the central recess, *h*, are bent over, so as to form a hinge, *h'*, adapted to receive a pin, *i*, which, when passed through the said hinge and an aperture in the conveyer-shaft, secures the suspension of the flights in position thereon.

A bracket, *k*, is attached to the back of each flight H, provided upon its extended end with a semicircular or U-shaped stop, *k'*, which is adapted to bear up against the under side of the conveyer-shaft E, thereby holding the flights in a rigid vertical position, when by the forward movement of the shaft they are employed to convey the product in the box from the distributer to some proper receiver. As the shaft returns the flights assume a slanting position toward the front end of the box, thus permitting their ready passage over the surplus product therein. This movement is rendered possible because of their smooth front

face and hinged position upon the shaft, and as the shaft is again carried forward the product within the box coming in contact with the face of the flights engages the stops upon their backs with the shaft, and they again assume a rigid vertical position, carrying the product before them. If desired to carry the product in an opposite direction from that shown in Fig. 1 and carry it in the direction illustrated in Fig. 2, it is only necessary to withdraw the pin *i* from the shaft E, reverse the flights H, again enter the pin, and the change is effected.

We sometimes fit collars upon the shaft, with a lug projecting from the under side, to engage one face of the flights to form a stop, instead of having a bracket attached to the flights carrying a stop, as before described; but the latter method we deem preferable.

In our form of conveyer the hinged flights do not grind or crush the stock in handling, as is the case with most forms now in use, therefore will not fog or cause any dust in operation, and while it occupies but a small space its capacity is great. Another important feature of our conveyer is the small amount of power requisite to operate it, and the fact that it can be driven from any point on the conveyer-shaft where it is most convenient to attach the power. Then, again, one or more conveyers may be driven at an angle, or parallel to each other, or both, as shown in Fig. 3, the power being applied to but one shaft. Here the conveyer-shaft E of the box C is fitted with two pins, *n n'*, projecting downward from the shaft, having round projecting heads with a space between, in which revolves a pulley, M, keyed to a convenient shaft fitted upon each side alternately with projecting wedge-shaped blocks *m*, which in revolution alternately engage the pins *n n'* upon the shaft, imparting thereby a reciprocating motion. The pulley M is shown with pins inserted in its periphery adapted to be turned with a chain belt; but a rubber, leather, or other belt may be used.

The shaft E of the conveyer-box C, which is shown situated at an angle with the box C, is reciprocated by means of a crank-lever, *o*, engaging therewith at one end, pivoted to a timber connecting the two boxes, and connected at the other end to the central conveyer-shaft, E, the connection being made by the slotted arms of the said crank-lever *o*, engaging anti-friction rollers or pins *o'* upon said shafts E E'. Another conveyer-shaft, G', held for reciprocation in the box G, (shown parallel with the conveyer-box C, but not necessarily extending even with its ends,) also receives motion from the central conveyer-shaft, E, by means of a slotted bar, *g*, pivoted to the timbers connecting the two boxes C and G, the slots in said bar receiving anti-friction rollers or pins *g'*, one upon the shaft G' and the other below the pin *o'* upon the reciprocated shaft E of the conveyer C.

It will be seen from the above description that the conveyer is capable of operation in a complete circle or any part thereof. It is also readily thrown in and out of gear while the machinery is in motion.

The operation is as follows: In the conveyer-box, situated under a hopper which conveys the stock thereto, a shaft is held, which receives a reciprocating motion through the medium of a cam and lever or other mechanical combination. Hinged to the said shaft are a series of flights provided upon their backs with brackets provided with a stop adapted to bear against the under side of the shaft, so that in one direction the flights are enabled to assume a slanting position, while in the other a vertical rigid position is obtained. The stock passes through the hopper to the conveyer-box, and the forward movement of the shaft causes the flights, which are now braced against the shaft, to carry it forward toward the end of the box, and a portion out through thereof as the shaft moves back. The flights, being free, assume an inclined position, passing easily over the stock remaining in the box, to which more has been added, the shaft is again carried forward, the flights from contact with the stock again assume a vertical position, conveying more of the stock to the receiver, and carrying that in the upper end of the box farther down toward the opening, and so on continuously.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with a conveyer-box, of a shaft held to reciprocate therein, provided with a series of hinged flights having stops adapted to engage the shaft, substantially as shown and described, and for the purposes herein set forth.

2. The combination, with a conveyer-box, of a reciprocating shaft held in said box, and a series of hinged flights centrally recessed at the top and provided with a bracketed stop upon one face, substantially as shown and described, and for the purpose herein set forth.

3. In a conveyer, a reversible flight constructed with a hinge-top centrally recessed, having a bracket supporting a stop attached to one face thereof, substantially as shown and described, and for the purposes herein set forth.

4. In a conveyer, the combination, with the reciprocating shaft E, held in the box C, of the flights H, having a central recess, *h*, and provided with a bracket, *k*, and stop *k'*, reversibly hinged to said shaft by pins *i i*, said flight being capable of movement in but one direction, substantially as shown and described, and for the purposes herein set forth.

5. In a conveyer, the combination, with the shaft E, held to reciprocate in the box C, having flights H hinged thereto within said box, and lugs *e*, attached to the outer end of said shaft, of the lever *a'*, pivoted to the offset *b'*,

adapted to engage said lugs *e* at one end, and provided with a yoke, *b*, at its other, engaging a cam, *a*, substantially in the manner and for the purposes herein set forth.

6. The combination, with the reciprocating shaft of a conveyer, and the shaft of a similar conveyer, arranged at an angle with the first conveyer, said shafts carrying upwardly-extending pins, of a slotted pivoted lever engaging the pins of said shaft, substantially as shown and described, and for the purposes herein set forth.

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GEORGE W. HENDERSON.

Witnesses:
J. M. BAKER,
W. E. CONGER.